

Page 2
Application No. 09/801,428
Amendment B

AMENDMENTS TO THE CLAIMS

Claim 1 (Currently amended): A laser device comprising:
a gain medium in the shape of a polyhedron in which a beam to be amplified enters the gain medium through one face of the polyhedron;
wherein the beam is reflected internally at two or more surfaces in a single pass through the gain medium with each reflection occurring in such a manner that the beam propagates within approximately the plane of incidence and does not propagate directly between parallel reflecting surfaces; and,
wherein the beam enters and exits the gain medium at different locations.

Claim 2 (Withdrawn): The laser device of Claim 1 wherein the different locations are on one surface of the polyhedron.

Claim 3 (Original): The laser device of Claim 1 wherein the different locations are on different surfaces of the polyhedron.

Claim 4 (Original): The laser device of Claim 1 in which optical pump radiation enters the gain medium through the one or more surfaces from which the beam will be reflected.

Claim 5 (Original): The laser device of Claim 1 in which optical pump radiation enters the gain medium through one or more surfaces from which the beam will not be reflected.

Claim 6 (Original): The laser device of Claim 1 in which the optical pump radiation enters the gain medium through one or more surfaces of the polyhedron which are approximately parallel to the plane of incidence.

Page 3
Application No. 09/801,428
Amendment B

Claim 7 (Original): The laser device of Claim 1 in which the optical pump radiation enters the gain medium through one or more surfaces of the polyhedron which are approximately perpendicular to the plane of incidence.

Claim 8 (Original): The laser device of Claim 1 further comprising heat sinks coupled to external surfaces of the gain medium.

Claim 9 (Original): The laser device of Claim 8 wherein the flow of heat from the gain material is generally within a plane transverse to the plane of incidence.

Claim 10 (Original): The laser device of Claim 1 wherein at least one of the one or more surfaces are oriented at approximately 45 degrees with respect to the path of the beam.

Claim 11 (Currently amended): A laser device comprising:
a gain medium in the shape of a polyhedron in which a beam to be amplified enters the gain medium through one face of the polyhedron;
wherein the beam is reflected internally at one or more surfaces with each reflection occurring in such a manner that the beam propagates within approximately the original plane of incidence; and,
wherein the polyhedron contains an internal core section in which there is no gain material.

Claim 12 (Original): The laser device of Claim 11 in which the internal core section is in a geometry which prevents uncontrolled laser oscillation.

Claim 13 (Original): The laser device of Claim 11 in which a surface of the internal core section reflects pump radiation back towards a portion of the gain medium through which the laser beam will pass.

Page 4
Application No. 09/801,428
Amendment B

Claim 14 (Withdrawn): The laser device of Claim 11 wherein the beam enters and exits the gain medium at different locations, wherein the different locations are on one surface of the polyhedron.

Claim 15 (Original): The laser device of Claim 11 wherein the beam enters and exits the gain medium at different locations, wherein the different locations are on different surfaces of the polyhedron.

Claim 16 (Original): The laser device of Claim 11 in which optical pump radiation enters the gain medium through the one or more surfaces from which the beam will be reflected.

Claim 17 (Original): The laser device of Claim 11 in which the optical pump radiation enters the gain medium through one or more surfaces of the polyhedron which are approximately parallel to the plane of incidence.

Claim 18 (Original): The laser device of Claim 11 in which the optical pump radiation enters the gain medium through one or more surfaces of the polyhedron which are approximately perpendicular to the plane of incidence.

Claim 19 (Original): The laser device of Claim 11 in which optical pump radiation enters the gain medium through one or more surfaces from which the beam will not be reflected.

Claim 20 (Original): The laser device of Claim 11 further comprising heat sinks coupled to external surfaces of the gain medium.

Claim 21 (Original): The laser device of Claim 20 wherein the flow of heat from the gain material is generally within a plane transverse to the plane of incidence.

Page 5
Application No. 09/801,428
Amendment B

Claim 22 (Original): The laser device of Claim 11 wherein at least one of the one or more surfaces are oriented at approximately 45 degrees with respect to the path of the beam.

Claim 23 (Currently amended): A laser device comprising:

a gain medium in the shape of a polyhedron in which a beam to be amplified enters the gain medium through one face of the polyhedron;

wherein the beam is reflected internally at two or more surfaces in a single pass through the gain medium with each reflection occurring in such a manner that the beam propagates within approximately the original plane of incidence and does not propagate directly between parallel reflecting surfaces; and,

wherein at least one of the one or more surfaces are oriented at about 45 degrees with respect to the path of the beam.

Claim 24 (Original): The laser device of Claim 23 wherein the beam enters and exits the gain medium at different locations, wherein the different locations are on one surface of the polyhedron.

Claim 25 (Original): The laser device of Claim 23 wherein the beam enters and exits the gain medium at different locations, wherein the different locations are on different surfaces of the polyhedron.

Claim 26 (Original): The laser device of Claim 23 in which the optical pump radiation enters the gain medium through one or more surfaces of the polyhedron which are approximately parallel to the plane of incidence.

Claim 27 (Original): The laser device of Claim 23 in which the optical pump radiation enters the gain medium through one or more surfaces of the polyhedron which are approximately perpendicular to the plane of incidence.

Page 6
Application No. 09/801,428
Amendment B

Claim 28 (Original): The laser device of Claim 23 in which optical pump radiation enters the gain medium through one or more surfaces from which the beam will not be reflected.

Claim 29 (Original): The laser device of Claim 23 in which optical pump radiation enters the gain medium through one or more surfaces from which the beam will be reflected.

Claim 30 (Original): The laser device of Claim 23 further comprising heat sinks coupled to external surfaces of the gain medium.

Claim 31 (Original): The laser device of Claim 30 wherein the flow of heat from the gain material is generally within a plane transverse to the plane of incidence.